Claim 26, amend to read as follows

B2

26. (Amended) A [sol-gel] process for producing solid energetic material which [stores] includes a volume of chemical energy [in a fixed volume], said process being carried out using sol-gel processing.

Please add the following claims:

B3

27. The process of Claim 1, wherein utilizing sol-gel chemistry is carried out utilizing a methodology consisting of solution addition to crystallize the energetic materials within pores of a sol-gel derived solid.

28. The process of Claim 1, wherein utilizing sol-gel chemistry is carried out utilizing a methodology consisting of solution exchange involving exchanging the liquid phase after gelation with another liquid containing an energetic material constituent, thereby allowing deposition of the energetic material constituent within the gel.

29. The process of Claim 1, wherein utilizing sol-gel chemistry is carried out utilizing a methodology consisting of powder/particle additions involving mixing a particulate form of an energetic constituent with a pre-gel solution or adding to a pre-made gel resulting in a composite of gel and suspended particles.

30. The process of Claim 1, wherein utilizing sol-gel chemistry is carried out utilizing a methodology consisting of a functionalized solid network which includes utilizing reactive monomers which have funtionalized sites

dangling throughout the solid network after gelation, and controlling the number of functionalized sites while ensuring homogeneity at a molecular level.

31. The process of Claim 1, wherein utilizing sol-gel chemistry is carried out utilizing a methodology consisting of a functionalized energy network involving functionalizing energetic material constituent molecules so that they are reacted in solution to directly form a three-dimensional solid (gel) which incorporates the energetic molecules at a finest scale.

B3 cont.

32. The process of Claim 1, wherein utilizing sol-gel chemistry is carried out utilizing a methodology consisting of a micron to sub-micron (nano) composite of higher performance energetic materials which includes making the energetic composite materials in which a skeletal structure and the surrounding phase serve as fuels and oxidizers.

33. The process of Claim 27, wherein the solution addition methodology additionally includes:

dissolving energetic materials in a solvent which is compatible with a reactive monomer;

mixing the dissolved energetic materials into a pre-gel solution;

causing gelation of the solution wherein the energetic material is uniformly distributed within pores of a solid network formed by the polymerization of the reactive monomer; and

allowing deposition of the energetic material within the gel.

34. The process of Claim 28, wherein the solution exchange methodology additionally includes:

forming a solution;

causing gelation of the solution;

B3 Cont.

after gelation, exchanging the liquid phase with another liquid which contains an energetic material constituent; and

allowing deposition of the energetic material constituent within the gel.

35. The process of Claim 29, wherein the powder/particle addition methodology additionally includes:

providing an energetic material in powder or particulate form;

either mixing the powder or particulate energetic material with a pre-gel solution or adding to a pre-made gel, thereby resulting in a composite of gel and suspended particles.

36. The process of Claim 30, wherein the funtionalized solid network methodology additionally includes:

after gelation using the reactive monomers having functionalized sites dangling throughout the solid network;

dissolving an energetic material in mutually compatible solvents and diffusing into the gel which allows the energetic material to react and bind to the functionalized site; and

controlling the amount of energetic material by the number of functionalized sites while ensuring homogeneity at the molecular level.

37. The process of Claim 31, wherein the funtionalized energetic network methodology additionally includes:

providing energetic material constituent molecules;

functionaliizing the energetic material constituent molecules; and

B3 cont.

functionalizing the energetic material constituent molecules so that they can be reacted in solution to directly form a three-dimensional solid or gel network which incorporates the energetic material molecules at the finest scale.

38. The process of Claim 37, wherein the solid network is the energetic material and controls the concentration by co-reacting with other inert reactive monomers.

39. The process of Claim 32, wherein the micron to sub-micron (nano) composite methodology additionally includes:

forming the skeletal structure containing void spaces; and

wherein the skeletal structure and void spaces contain one of a fuel or oxidizer.

40. The process of Claim 39, additionally including forming conductive gels which form the skeletal structure and void space, and utilizing the skeletal structure as substrates for the electrochemical precipitation of metal fuels.

41. The process of Claim 39, additionally including depositing metals with the skeletal structure and void spaces via decomposition from the liquid or gas phase of the process.

42. The process of Claim 9, additionally including utilizing the void spaces for the addition of an oxidizer, a fuel, or other energetic material constituents.

43. The process of Claim 1, wherein the energetic materials are selected from the group consisting of RDX, PETN, HMX, CL-20, TNT, and ammonium perchlorate.

B3 cancel.

44. The process of Claim 26, wherein the sol-gel processing is carried out using a methodology involving energetic materials selected from the group consisting of PETN, RDX, HMX, CL-20, TNT, and ammonium perchlorate.

45. A process for producing energetic materials which includes:

forming a solution;

gelation of the solution;

extracting liquid from the gel by the technique selected from the group consisting of controlled slow evaporation of the liquid phase of the gel and supercritical extraction of the liquid phase of the gel; and

incorporating at least one energetic material constituent during at least one of the solution formation, the gelation of the solution, and the extracting of liquid from the gel.

The 35 USC 112 Rejection

Claims 1 and 26 are rejected under 35 USC 112, second paragraph, as being indefinite. The Examiner contends the method claims have "no method

steps." Applicants disagree, but Claims 1 and 2 have been amended to more clearly set forth the operations of the process. As to the objection to "fixed volume," "fixed" has been cancelled. The terms "chemical energy" and "energetic materials," when read in light of Applicants' disclosure are not "relative and indefinite." The Examiner mistakenly considers Claims 1 and 26 as "use" claims. It is submitted that Claims 1 and 26, particularly as now amended, comply with 35 USC 112, second paragraph.

The 35 USC 101 Rejection

Claims 1 and 26 are rejected under 35 USC 101 because the claimed recitation is a use or process "without setting forth any steps involved in the process." Claim 1, for example, sets forth a process for producing energetic materials, and that process sets forth the step of "utilizing sol-gel chemistry" to produce the energetic material. Thus, why is Claim 1, for example, not a proper process claim under 35 USC 101? The "step" of "utilizing sol-gel chemistry" is clearly a proper step, admittedly broad, but still proper. Thus, it is urged that this ground of rejection is improper and should be withdrawn.

The 35 USC 102/103 Rejection

Claims 1 and 26 are rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over each of *Takayama et al.*, *Sayles*, *Honeyman et al.* and *Sandell*. The Examiner references col. 1, line 55-col. 2,

line 2 of *Takayama et al.*; col. 2, lines 27-46 of *Sayles*; col. 9, lines 45-col. 10, line 13 of *Honeyman et al.*; and col. 10, lines 1-40, e.g., of *Sandell*. There is no reference to the use of "sol-gel chemistry" found in any of these four references. Admittedly, *Takayama et al.* refers to "gel-ammonium," "clay sol," and "gel of the clay"; and *Sandell* refers to "Five different sols," "Sol 2," "Sol degradation," "aluminized sols," and "Sols 4-D and 4-E." Surely the Examiner does not consider these references to the terms "gel" or "sol," as constituting the claimed "sol-gel chemistry." If so, the Examiner is referred to Applicants' specification which describes "energetic materials" and "sol-gel chemistry."

It is submitted that none of the four (4) references teaches, suggests, or even hints, at producing the claimed "energetic materials" by "sol-gel chemistry." Thus, there is no support found in the four applied references to support a rejection of Claims 1 and 26 under either 35 USC 102 or 35 USC 103. Therefore, these rejections should be withdrawn.

The Double Patenting Rejection

Claims 1 and 26 are provisionally rejected under the judicially created doctrine of double patenting of Claims 2 and 14 of co-pending application S.N. 08/926,357. Application S.N. 098/926,357 is the parent of the instant application and, thus, original claims 2-14 are the same in each application, these claims having been cancelled in the instant application. A simple comparison of Claims 2 and 14 of the parent application with Claims 1 and 26 clearly illustrates the